

Title (en)
LIQUID CRYSTAL LENS ELEMENT AND OPTICAL HEAD

Title (de)
FLÜSSIGKRISTALL-LINSENELEMENT UND OPTISCHER KOPF

Title (fr)
ELEMENT DE LENTILLE A CRISTAUX LIQUIDES ET TETE OPTIQUE

Publication
EP 1742099 A4 20080402 (EN)

Application
EP 05737351 A 20050427

Priority
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Abstract (en)
[origin: EP1742099A1] A liquid crystal lens element is provided, which can realize a small sized element having no moving part, and which has a lens function of switching the focal length among multiple focal lengths of at least 3 types according to an applied voltage. A liquid crystal lens element 10 is provided, which comprises a pair of transparent substrates 11 and 12 and a liquid crystal layer sandwiched between these substrates, wherein focal lengths of light transmitted through the liquid crystal 16 is changed depending on a voltage applied to the liquid crystal 16, the liquid crystal lens element 10 has a Fresnel lens-shaped concave-convex portion 17 and a liquid crystal layer 16A, and configured so that the refractive index n of the liquid crystal layer 16A changes from a refractive index n_1 at a time of no application to a refractive index n_2 at a time of voltage application, a refractive index n_s of the concave-convex portion 17 is a value between the refractive indexes n_1 and n_2 and satisfies a predetermined relation, and the maximum depth d of the concave-convex portion 17 satisfies a predetermined relation, the focal length can be switched by switching an applied voltage to the liquid crystal layer 16A under the predetermined conditions.

IPC 8 full level
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Citation (search report)
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